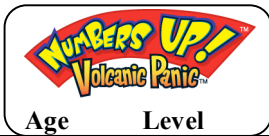
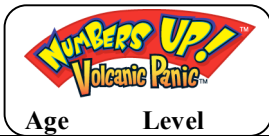


SA Mathematics R-9 Curriculum Objectives Addressed Within Numbers
Up! Volcanic Panic



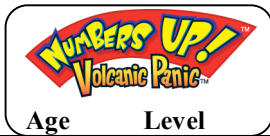
Age	Level	SA Level	Numbers	Operations	Strategies
4 -6	Level s 1-6	Level 1	<p>1.6 <i>Uses the base 10 number system and fractions to represent numbers when working with their peers, collections of objects, measurements and data.</i></p> <p>(R-1) Compares, matches, orders and describes objects and collections Recognises and uses numerals to 10 Knows number names to 10 Counts groups of objects to at least 10 Ascribes a number to a small group of objects Uses own language to describe fractions Uses ordinal numbers <i>first, second, third</i></p>	<p>1.7 <i>Describes, represents and uses a variety of counting strategies and the four number operations to estimate and quantify collections of objects, units of comparison and amounts of money.</i></p> <p>(R-1) Recognises equality and inequality in quantity Orders and describes groups according to quantity Can join groups and take them apart</p>	<p>1.8 <i>Uses counting strategies to answer questions about situations that involve number operations</i></p>
6 -7	7-8		<p>(1-2) Recognises and uses numerals to at least 30 Describes position by using ordinal sequences to 10 Counts from different starting points Groups objects for</p>	<p>(1-2) Identifies and describes equality and inequality between groups to 10 using numbers Estimates totals and differences Orders groups according to the number in each</p>	<p>(1-2) Develops mental computation strategies of number facts to 10 Uses counting on or backwards Identifies possible combinations for a given number Recognises which</p>

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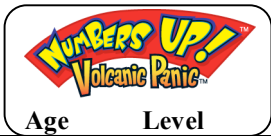
Age	Level	SA Level	Numbers	Operations	Strategies
			more efficient counting Ascribes a number by recognising the arrangement Uses groups of 10s and 1s to make numbers to 30	group Uses addition and subtraction to make statements of equality Uses objects to add or subtract numbers	operation to use for a particular situation
7-8	9 -12		(2-3) Recognises and uses numerals to at least 100 Knows number names beyond 100 Counts by 2's and 10s to 100 and beyond Counts forwards or backwards from a given number Uses simple fractions accurately Compares, reads and writes simple fractions Uses the patterns within the number system to recognise and write numerals to 100 and beyond Uses the structure of the base 10 number system to arrange and rearrange numbers Uses ordinal words and numbers beyond 10	(2-3) Solves problems relating to equality and inequality by using counting and ordering strategies Uses knowledge of number, number relationships and operations to construct statements of equality and inequality Understands and uses horizontal and vertical representations of operations Recognises that addition and subtraction are inverse operations Recognises multiplication as repeated addition or grouping and division as repeated subtraction or sharing	(2-3) Develops mental computation strategies of number facts to 20 Applies place value knowledge to compute mentally beyond 20 Relates addition of equal groups to interval counting and begins to explore multiplication Relates subtraction of equal groups to interval counting and begins to explore division Composes and decomposes numbers

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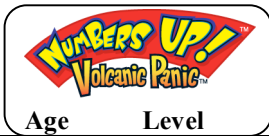
Age	Level	SA Level	Numbers	Operations	Strategies
8-9	13-15	Level 2	<p>2.6 Represents and compares rational numbers in a variety of ways, describing relationships among them</p> <p>(Year 3) Understand the value of 1 = whole Understands and uses commonly used fractions Models and recalls simple equivalent fractions Understands and uses mixed numbers to 10 Counts (forwards and backwards), orders, reads and records two- and three-digit whole numbers and fractions to 100 Understands the place value of numbers up to 1000 Understands that addition and subtraction are inverse operations. Understands the term <i>remainder</i> Divides 2 and 3 digit numbers by 1 digit numbers with and without remainders. Recognises and uses odd and even</p>	<p>2.7 Describes, represents and applies operations with whole numbers.</p> <p>Exchanges 1 to 10 Exchanges 10 to 1 Adds two- and three-digit numbers with and without exchanging. Subtracts two- and three-digit numbers with and without exchanging. Understands relationship between addition and multiplication. Understands relationship between subtraction and division. Explores relationships between table facts Builds up knowledge and understanding of table facts Multiplies 2 digit numbers by 1 digit Performs mental computations to 2 digits Practises, understands and recalls basic addition and subtraction and number facts to 20.</p>	<p>2.8 Uses a variety of estimating and calculating strategies, including memorising addition and subtraction facts with whole numbers, and with money represented as decimals.</p> <p>Adds and subtracts money up to \$10</p>

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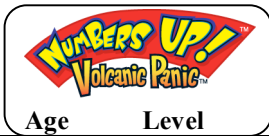
Age	Level	SA Level	Numbers	Operations	Strategies
9-10	16-17		<p>numbers.</p> <p>(Year 4) Understands that 0 is a place holder Models, compares and represents commonly used fractions including one tenth and one hundredth Sequences and orders fractions Finds equivalence between halves, quarters and eighths, fifths and tenths, tenths and hundredths. Counts (forwards and backwards), orders, reads and records whole numbers and fractions to 10 000 Understands and uses the term <i>decimal</i> Recognises, understands and uses decimals to 2 decimal numbers Reads and writes decimals numbers to tenths Orders simple decimals and fractions according to size.</p>	<p>(Year 4) Practises, understands and recalls basic addition and subtraction number facts to 50. Adds up to 4 digit numbers with and without exchanging Subtracts up to 4 digit numbers with and without exchanging. Memorises and recalls times tables up to 12x. Multiplies by 10 and by 100 Divides by 10 and by 100 Multiplies 2 and 3 digit numbers by 1 digit Uses multiplication to check division. Performs mental computations to 3 digits. Divides 4 digits by 1 digit, with and without remainders. Determines prime, composite and square numbers.</p>	<p>(Year 4) Adds and subtracts money amounts up to \$100 Multiplies and divides amounts by 1 digit up to \$100</p>

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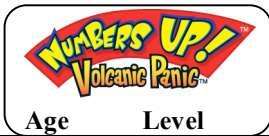
Age	Level	SA Level	Numbers	Operations	Strategies
10-11	18-19		<p>(Year 5) Finds fractions of quantities Understands and uses equivalent fractions. Sequences and orders fractions. Converts fractions to lowest terms. Adds and subtracts fractions with like denominators. Converts simple mixed numbers to improper fractions. Recognises, understands and uses the term percentage. Adds and subtracts decimals to 2 decimal places. Converts tenths and hundredths to decimals and percentages and the reverse.</p>	<p>(Year 5) Adds with exchanging to 5 and 6 digit numbers. Subtracts with exchanging to 5 and 6 digit numbers. Understands and recalls times tables up to 12x. Understands and uses factors and multiples of numbers. Practises, understands and recalls basic addition and subtraction number facts to 100. Understands and uses the rules of multiplication by 10 and by 100. Divides multiples of 10 by 10 and multiples of 100 by 100. Multiplies 2, 3 and 4 digit numbers by 1 digit. Multiplies 2 digits by multiples of 10. Divides 4 and 5 digit numbers with divisors up to 10 with and without remainders. Performs mental computations to 4 numbers. Determines prime, composite and</p>	<p>(Year 5) Adds and subtracts money amounts up to \$500</p>

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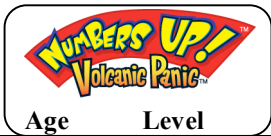
Age	Level	SA Level	Numbers	Operations	Strategies
11-13	19-21		<p>3.6 <i>Represents and analyses relationships among number concepts and uses these to make sense of, and represent, the world.</i></p> <p>4.6 <i>Represents and analyses relationships amongst integers and rational numbers.</i></p>	<p>3.7 <i>Describes, represents and analyses operations with rational numbers and relationships between them.</i></p> <p>4.7 <i>Communicates understanding of the meaning of operations with integers and rational numbers and how they relate to each other.</i></p>	<p>3.8 <i>Uses a variety of estimating and calculating strategies with whole numbers, including memorising multiplication and division facts, fractions and decimals.</i></p> <p>4.8 <i>Applies appropriate computational tools and strategies to proportional situations involving integers and rational numbers.</i></p>

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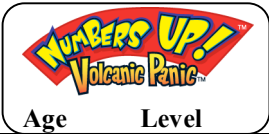
Age	Level	SA Level	Numbers	Operations	Strategies
10 - 11	19	Level 3	<p>(Year 6)</p> <p>Recognises the existence of different number systems</p> <p>Reads, write and records numbers to one million, using numerals and words.</p> <p>Understands place value of digits in numbers to 1 000 000</p> <p>Writes numbers to 1 000 000 in expanded form</p> <p>Rounds to the nearest 10, 100, 1000, 10 000 and 100 000.</p> <p>Places numbers in descending and ascending order.</p> <p>Uses addition and subtraction in problem solving.</p> <p>Uses rounding and a mental strategy to multiply a 2 digit number by a 2 digit number.</p> <p>Divides a number with 3 or more digits by multiples of 10.</p> <p>Selects and uses appropriate operations to solve contextual word problems</p>		

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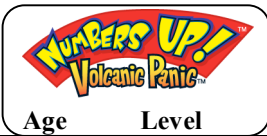
Age	Level	SA Level	Numbers	Operations	Strategies
11-12	20-22	(1-2)	<p>(Year 7)</p> <p>Recognises, uses and writes numbers beyond 1 000 000. Identifies place value of numbers over 1 000 000. Writes numbers over 1 000 000 in expanded form, using powers of 10. Uses power or index notation. Writes numbers over 100 000 in ascending and descending order. Identifies factors, common factors, prime factors, highest common factor, lowest common multiple. Applies square root to square numbers and uses the appropriate symbol. Solves a given 2-step number or word problem. Understands the order of operations. Divides a number with 3 or more digits by a single digit or multiples of 10 (with a remainder expressed as a decimal) Identifies the operations needed to solve more complex problems.</p>		

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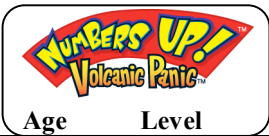
Age	Level	SA Level	Numbers	Operations	Strategies
12-14	23-26	(2-3)	<p>Recognises the existence of negative numbers.</p> <p>(Year 8) Round off numbers in multiples of 10 and to 1 and 2 figures Estimates using 1 and 2 figure working and applies to problem solving. Uses index notation to express powers of numbers. Recognises the link between squares and square roots, cubes and cube roots, and uses the correct notation. Directed Numbers Explores common uses of positive and negative signs Adds and subtracts directed numbers using the number line. Using the rules for adding and subtracting directed numbers.</p>		

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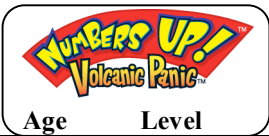
Age	Level	SA Level	Numbers	Operations	Strategies
11-12	Fractions 8+, Decimal Numbers in all Categories from Level 19, Ratios and Rates Level 15+		<p>Use the rules for multiplying and dividing directed numbers. Combines operations with directed numbers using order of operations.</p> <p>Fractions, Decimals, Percentages, Ratios and Rates.</p> <p>(Year 6) Understands the place value of tenths, hundredths and thousandths. Reads and writes decimals to thousandths, in both numerals and words. Writes decimals in expanded form. Rounds to the nearest whole number, tenth or hundredth. Compares and orders decimals (descending and ascending). Adds or subtracts decimals that have a different number of decimal places. Multiplies and</p>		

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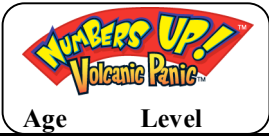
Age	Level	SA Level	Numbers	Operations	Strategies
12-13			<p>divides tenths, hundredths and thousandths by a single digit.</p> <p>Multiplies and divides decimal numbers, including money, by 10, 100 and 1000.</p> <p>Multiplies and divides decimal numbers, including money, by single digit numbers in everyday contexts.</p>		
			<p>(Year 7)</p> <p>Rounds off decimals to 3 places.</p> <p>Divides decimals by a whole number.</p> <p>Converts decimals to fractions.</p> <p>Applies decimals to practical problems.</p> <p>Compares the size of fractions.</p> <p>Compares and orders fractions in ascending and descending order.</p> <p>Converts fractions to frequently used decimals and percentages.</p> <p>Converts percentages to fractions and decimals.</p> <p>Expresses fractions of quantities as percentages.</p> <p>Finds simple</p>		

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Age	Level	SA Level	Numbers	Operations	Strategies
13-14			<p>percentages of quantities. Finds discount as a percentage. Solves practical problems involving percentages.</p> <p>(Year 8) Multiplies and divides decimal numbers Rounds numbers correctly to a given number of decimal places without a calculator. Multiplies and divides fractions. Solves real life problems involving fractions. Determines sets of equivalent fractions. Expresses information as a ratio. Finds equal ratios. Uses equal ratios to solve real life problems. Uses ratios to divide quantities. Applies ratios to scale diagrams. Expresses information as a rate.</p>		

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Age	Level	SA Level	Numbers	Operations	Strategies
			<p>Uses rates to solve real-life problems.</p> <p>Expresses one quantity as a percentage of another.</p> <p>Finds simple percentages of quantities.</p> <p>Finds discount as a percentage, especially money.</p> <p>Solves practical problems involving percentage.</p>		